

REQUEST FOR WITHDRAWAL OF FINALITY OF OFFICE ACTION

Applicant respectfully submits that the finality of the office action dated January 26, 2006 was improper and premature, and requests that the finality of the office action be withdrawn and that the following remarks and amendments be admitted.

According to MPEP 706.07(a) Final Rejection, When Proper on Second Action, "Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) ... Furthermore, a second or any subsequent action on the merits in any application ... will not be made final if it includes a rejection, on newly cited art, other than information submitted in an information disclosure statement ... of any claim not amended by applicant or patent owner in spite of the fact that other claims may have been amended to require newly cited art."

Claim 21 was not amended in Applicant's November 3, 2005 amendment responsive to the office action dated August 3, 2005 where claim 21 had been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaganowicz, U.S. Patent No. 5,011,268, in view of Fayet et al, WO 99/19229. In the office action dated January 26, 2006, the Examiner withdrew all of the 35 U.S.C. 102(b) and 103(a) rejections (paragraph 1) and rejected claim 21 on a new ground of rejection based on newly cited art (paragraph 3). Claim 21 is now rejected under 35 U.S.C. § 102(b), as being anticipated by Kobale, U.S. Patent No. 4,201,453. Applicant did not have an opportunity to address the new ground of rejection and the newly cited art with respect to claim 21.

Accordingly, withdrawal of the finality of the office action dated January 26, 2006 is respectfully requested pursuant to MPEP 706.07(a) considering that at the very least, the new ground of rejection of claim 21 based on newly cited art made in the office action dated January 26, 2006 was not necessitated by an Applicant's amendment or an information disclosure statement.

REMARKS

Claims 15-19 and 21-25 are pending in the application. Claims 15-19 and 21-25 were rejected.

AMENDMENTS

Claims 15-18 and 21-24 were amended. No new matter has been added.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112

Claims 16-18 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite because it was not clear whether the "material" is the one adjusting the stoichiometric ratio of the constituent materials, or one of the constituent materials. Claims 15-18 have been amended to remove the term "material." It is believed that claims 15-18 satisfy the requirements under 35 U.S.C. § 112, second paragraph.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102

Claims 15, 19 and 21 were rejected under 35 U.S.C. § 102(b), as being anticipated by Kobale, U.S. Patent No. 4,201,453 (hereinafter Kobale). Claim 24 was rejected under 35 U.S.C. § 102(b), as being anticipated by Okada, U.S. Patent No. 6,221,444 (hereinafter Okada). The rejections are respectfully traversed.

Regarding claims 15 and 21, the Examiner states, *inter alia*, 'the process limitation of "having a stoichiometric ratio adjusted by an amount of material, the amount determined to

provide a given pretilt angle” is not given any patentable weight since the pretilt angle is inherent in the alignment layer.’ Applicant respectfully disagrees.

Claims 15 and 21 are directed to liquid crystal display devices, and were amended to remove any subject matter possibly evocative of a process limitation. Additionally, there is no support for the Examiner’s statement that “the pretilt angle is inherent in the alignment layer.” As disclosed in paragraph 30 of Applicant’s published application,

“Where layer 104 began as a material with homeotropic alignment tendencies, a material with homogenous alignment tendencies may be added. Where layer 104 began as a material with homogenous alignment tendencies, a material with homeotropic alignment tendencies may be added. This results in stoichiometric relationships which provide a given pretilt angle.”

The pretilt angle is not inherent in the alignment layer but is a function of the composition of its constituent materials. It is known in the art that in liquid crystals, homeotropic alignment is the state in which a rod-like liquid crystalline molecule aligns perpendicularly to a substance as a whole. In contrast, the state in which the molecule aligns to a substance in parallel is called homogeneous alignment. The stoichiometric ratio of the constituent materials comprising the alignment layer is selected to obtain a given pretilt angle in the alignment layer. The constituent materials may tend toward perpendicular or parallel alignment and a ratio of each provides an alignment layer composition with a given pretilt angle.

Kobale discloses, *inter alia*, “a liquid crystal display device having an insulating layer,...but is homeotropically orientated and can be constructed without any disturbing reflection in a simple manner.” Kobale does not disclose any means or structure for achieving a given pretilt angle such as, for example, by “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Accordingly, Applicant believes claims 15 and 21 are neither anticipated nor rendered obvious in light of Kobale and are allowable over the prior art of record.

Regarding claim 19, the Examiner states that Kobale discloses “that the alignment layer includes a homeotropic alignment layer (column 1, lines 65-68, column 2, lines 1-2), and thus a tilted homeotropic alignment layer.” Applicant respectfully disagrees.

Kobale discloses, *inter alia*, “a liquid crystal display device having an insulating layer,...but is homeotropically orientated and can be constructed without any disturbing reflection in a simple manner.” Therefore, Kobale does not disclose an alignment layer including “a tilted homeotropic alignment layer.” Additionally, there is no support for the Examiner’s statement alleging that a homeotropic alignment layer is equated with a tilted homeotropic alignment layer. Accordingly, Applicant believes claim 19 is neither anticipated nor rendered obvious in light of Kobale and is allowable over the prior art of record. Also, since claim 19 depends from claim 15 it is believed that the dependent claim is allowable for at least the reasons given above for the independent claims.

Regarding claim 24, the Examiner states that Okada discloses, *inter alia*, “an alignment material comprising a first material which provides a homeotropic alignment (column 17, lines 44-47); a second material introduced providing a more homogeneous alignment than the first material (column 17, lines 47-48) in an amount to provide a given pretilt-angle to the alignment layer (Resin B realized homogeneous alignment, and alone provided a pretilt angle of below 5 deg., mixed with Resin A to provide a pretilt angle of 30 deg., column 11, lines 58-63).” Applicant respectfully disagrees.

Okada discloses “a composite alignment film comprising a polymeric component for homeotropically aligning a liquid crystal and a polymeric component for homogenously aligning a liquid crystal.” A lengthy description of Okada’s composite alignment film polymeric components is given in its specification from column 5, line 6 through column 7, line 63.

However, Okada does not disclose “an alignment layer comprising a first material ... and a second material ... wherein the first and second materials are selected from a group comprising Si, O, N, C, SiO_x, Si_xN_y, SiC_x, amorphous silicon (a-Si), and amorphous carbon (a-C:H or diamond-like-carbon (DLC)).” These materials are not polymeric. Accordingly, Applicant believes claim 24 is neither anticipated nor rendered obvious in light of Okada and is allowable over the prior art of record.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 16 and 18 were rejected under 35 U.S.C. § 103(a), as being unpatentable over Kobale as applied to claims 15, 19 and 21 above, and further in view of Onuma, U.S. Patent No. 5,353,141 (hereinafter Onuma). Claim 17 was rejected under 35 U.S.C. § 103(a), as being unpatentable over Kobale as applied to claims 15, 19 and 21 above, and further in view of Kaganowicz, U.S. Patent No. 5,011,268 (hereinafter Kaganowicz). Claims 22 and 23 were rejected under 35 U.S.C. § 103(a), as being unpatentable over Kobale as applied to claims 15, 19 and 21 above, and further in view of Chaudhari, U.S. Patent No. 6,195,146 (hereinafter Chaudhari). Claim 25 was rejected under 35 U.S.C. § 103(a), as being unpatentable over Okada as applied to claim 24 above, and further in view of Chaudhari.

Regarding claims 16 and 18, the Examiner states that Kobale discloses, *inter alia*, “a liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material, the amount determined to provide a given pretilt angle.” The Examiner also states that Onuma discloses, *inter alia*, “that SiC_x can be used instead of SiO_x.”

As described for claim 15 above, Kobale does not disclose “A liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent

materials having a stoichiometric ratio to provide a given pretilt angle.” Onuma discloses providing “a uniform alignment state through a high pretilt aligning treatment by rubbing an alignment film.” However, Onuma does not disclose “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Therefore, Onuma does not rectify the deficiencies of Kobale. Claims 16 and 18 depend from claim 15. Accordingly, claims 16 and 18 are neither anticipated nor rendered obvious in light of the cited references, alone or in combination. It is believed that claims 16 and 18 overcome the rejections under 35 U.S.C § 103(a) and are allowable for at least the reasons given above for independent claim 15.

Regarding claim 17, the Examiner states that Kobale discloses, *inter alia*, “a liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material, the amount determined to provide a given pretilt angle.” The Examiner also states that Kaganowicz discloses “that the material for the alignment layer includes silicon oxide and silicon oxynitride (column 4, lines 60-63) for the purpose of utilizing the respective physical properties, wherein the material has all the properties needed for an effective alignment layer (column 3, lines 45-55) and required pretilt angle (column 3, lines 25-30).”

As described for claim 15 above, Kobale does not disclose “A liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Kaganowicz discloses, “By using glow discharge techniques the deposited materials ... are porous and can be rubbed and the needed molecular alignment is achieved.” However, Kaganowicz does not disclose “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Therefore, Kaganowicz does not rectify the deficiencies of Kobale. Accordingly, claim 17 is neither

anticipated nor rendered obvious in light of the cited references, alone or in combination. It is believed that claim 17 overcomes the rejection under 35 U.S.C § 103(a) and is allowable for at least the reasons given above for independent claim 15.

Regarding claims 22 and 23, the Examiner states that Kobale discloses, *inter alia*, “a liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material, the amount determined to provide a given pretilt angle.” The Examiner also states that Chaudhari discloses, *inter alia*, “ions (beam of ion particles, column 2, lines 60-61) directed at the alignment layer to adjust the pretilt angle (column 2, lines 15-25).

As described for claims 15 and 21 above, Kobale does not disclose any means or structure for achieving a given pretilt angle such as, for example, by “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Chaudhari discloses “a surface of at least one alignment layer is bombarded by a particle beam of an adjustable energy using a voltage less than 200 V so that the liquid crystal molecules proximate the surface are induced to a predetermined pretilt angle.” However, Chaudhari does not disclose “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Therefore, Chaudhari does not rectify the deficiencies of Kobale. Accordingly, claims 22 and 23 are neither anticipated nor rendered obvious in light of the cited references, alone or in combination. It is believed that claims 22 and 23 overcome the rejection under 35 U.S.C § 103(a) and are allowable for at least the reasons given above for independent claims 15 and 21.

Regarding claim 25, the Examiner states, “Claim 25 was rejected under 35 U.S.C. § 103(a), as being unpatentable over Okada as applied to claim 24 above, and further in view of Chaudhari.” However, claim 25 does not depend from claim 24, but depends from claim 23,

which depends from independent claim 21. Claim 21 was rejected under 35 U.S.C. § 102(b), as being anticipated by Kobale. Applicant assumes the Examiner intended to reject claim 25 under 35 U.S.C. § 103(a), as being unpatentable over Kobale as applied to claim 21 above, and further in view of Chaudhari. Applicant will address the rejection of claim 25 as though it was rejected under 35 U.S.C. § 103(a), as being unpatentable over Kobale as applied to claim 21 above, and further in view of Chaudhari.”

The Examiner states that Kobale discloses, *inter alia*, “a liquid crystal display device, comprising: an alignment layer comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material, the amount determined to provide a given pretilt angle.” It is assumed the Examiner intended to state, as for claims 22 and 23, that Kobale “fails to teach ions directed at the alignment layer to control the uniformity of the pretilt angle.” The Examiner also states that Chaudhari discloses, *inter alia*, “ions (beam of ion particles, column 2, lines 60-61) directed at the alignment layer to adjust the pretilt angle (column 2, lines 15-25).

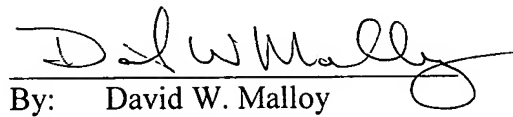
As described for claim 21 above, Kobale does not disclose any means or structure for achieving a given pretilt angle such as, for example, by “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Chaudhari discloses “a surface of at least one alignment layer is bombarded by a particle beam of an adjustable energy using a voltage less than 200 V so that the liquid crystal molecules proximate the surface are induced to a predetermined pretilt angle.” However, Chaudhari does not disclose “constituent materials having a stoichiometric ratio to provide a given pretilt angle.” Therefore, Chaudhari does not rectify the deficiencies of Kobale. Accordingly, claim 25 is neither anticipated nor rendered obvious in light of the cited references, alone or in combination. It is believed that claim 25

overcomes the rejection under 35 U.S.C § 103(a) and is allowable for at least the reasons given above for independent claim 21.

CONCLUSION

Applicant respectfully submits that claims 15-19 and 22-25 as herein presented are allowable over the prior art of record, taken alone or in combination, and that the respective rejections and objection be withdrawn. Applicant further respectfully submits that the application is hereby placed in condition for allowance which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "D W Malloy", is written over a horizontal line.

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